Amendments to the Drawings:

In the DRAWINGS Section, please add Fig. 4c presented in the attached Replacement Sheets

Fig. 4c shows the effect, when a translinear amplifier's gain is made different from 1, giving one more degree of freedom to independently adjust the steepness of the gate control voltage change versus tuning voltage relation.

Please replace Fig. 7 with the attached Replacement Sheet.

To better indicate the "steady ramp-up/ramp-down area", the "signal cut-off edges" and the areas "outside the steady transition area" said steady ramp-up/ramp-down area, appropriate marker lines and descriptive Symbols are added: "**Steady ramp-up/ramp-down Area**" marks the area of steady ramp-up/ramp-down, **Outside Lo** and **Outside Hi** mark the areas outside the steady transition area on the low resistance side or the hi resistance side and "**CutOff Lo**" and "**CutOff Hi**" mark the points, where the signal cut-off (purposely) takes effect. Corresponding description can be found on page 20, last paragraph to page 21, first paragraph.

Please add Fig. 10a presented in the attached Replacement Sheet and renumber originally filed Fig. 10 to Fig. 10b.

Fig. 10a shows the additional circuits to provide the cutoff signals to overdrive the switching devices to a fully off or fully on state. These additional circuit were originally described in the specifications and in the referenced Patent Application US Serial No. 10/676919, filed Oct. 1, 2003, but were not explicitely shown in a drawing in the instant application.

Attachment: Replacement Sheets for Fig. 4c, Fig. 7 and Fig. 10a.

REMARKS/ARGUMENTS

In response to the subject Office Action, an Amendment to the Specifications and to the Claims section is herein submitted.

Examiner Nguyen is thanked for thoroughly reviewing the above referenced patent application, and for the indication of allowability once various formal matters and informalities are corrected.

Remarks and Arguments on Claim Rejections due to 35 USC §112

1. Reconsideration of the rejection of claims 1-52 as being indefinite is requested, based on the following.

2. Regarding claim 1, the recitations "a circuit" on line 1, "a circuit" on line 11, "a translinear amplifier" on line 14, "a circuit" on line 18, "a circuit" on line 20 as being indefinite because it is not clear as to they are the same circuit or they are distinct circuits, and similar, regarding claim 17 and 26, the recitations " a circuit" on line 12, "a translinear amplifiers" on line 16, "a circuit" on line 19 and " a circuit" on line 23 as being indefinite because it is not clear as to they are the same or different, the structure of said claims, are now amended. It is now made clear, that the capacitor switching stages are each comprising a switching device, a circuit to control the switching operation and a circuit to provide the threshold levels, where said circuit to control the switching operation itself comprises a translinear amplifier (claims 1, 17, 26) and circuits to drive said switching device to a fully on or off state (claim 17) and a circuit to compensate the temperature deviation of said switching device (claim 26). Consequently claims 33, 43 and 47 are restructured in the same way.

3. Regarding claims 2-4, the recitation: "said switching device with steady transition phase" as being indefinite because it is not clear what " steady transition phase" is meant by, is now amended. The terms “steady transition phase (or area)” and “steady ramp-up/ramp-down phase (or area)”, which were defined in the specification as being sysnonyms seem to be formally confusing in the claims section. The claims are amended to now use only the term and “steady ramp-up/ramp-down phase (or area)”; the interpretation of said term is defined in detail in the specification section. The term “area” in this context is used to express the “operating range” – the term “phase” is used to express the “operation in process” within said area.

4. Regarding claim 17, the recitation " when said switching device is outside its steady transition area" on lines 3-4 as being indefinite because it is not clear what "outside its steady transition area" is meant by, is now amended. Additional description is provided in the specification, namely

Outside said "steady transition area" the switching device is not operating in a virtual linear mode any more, for example because it is reaching a switching transistor's saturation. The term "outside the steady transition area" therefore defines the capacitor switching stage's operating area outside its virtually linear "steady transition area". In **Fig. 7** the different operating areas are shown: the **Steady ramp-up/ramp-down Area**, the areas outside the steady transition area **Outside Lo** at the low (RDS) resistance side and **Outside Hi** at he high (RDS) resistance side. The cutoff edges are marked with **CutOff Lo** and **CutOff Hi**.

In addition Fig. 7 is amended to better show the areas outside said "Steady ramp-up/ramp-down Area".

The recitation " wherein said circuit to drive said switching device to a fully-on status, when said switching device is outside its desired steady transition area on the lower resistance side ...." Is amended throughout the document as presented in the following paragraph. "switching device is outside ..." now reads "switching device operates outside ..." and "on the lower/higher resistance side" now reads "on the low/high resistance side (low RDSon / high RDSoff)".

The total concept according to the proposed invention is shown in **Fig. 6**. One key point of the invention is the implementation of signal ~~limiting~~ cutoff functions at both ends of the steady ramp-up/ramp-down phase. Once the signal controlling the switching device leaves the steady transition phase, the signal condition is changed abrupt. **Fig. 7** visualizes this effect. The purpose is to overdrive said switching device to a fully-on state, when said switching device ~~is~~ operates outside its steady transition ~~phase~~ area on the lowe~~r~~ resistance side (low RDSon) and to overdrive said switching device to a fully-off status, when said switching device ~~is beyond~~ leaves its steady transition ~~phase~~ area on the highe~~r~~ resistance side (high RDSo~~n~~ff).

The same above amendments apply to claims 18 – 21 and 44 – 46.

5. Regarding claim 18-21 and similar claim 44 - 46, "....provided by additional circuit elements, working as a signal-limiting function" as being indefinite because it is not clear what "working as a signal-limiting function" is meant by (....) and what are the additional circuit elements in the drawing. Examiner requested: "The Applicant is requested to show the disclosure or drawing that are related to these recitations. Note that circuit elements ADD-COMP 1-7 and ADD-COMP 2-7 are not seen in the drawings nor disclosed in the specification."

Instead of the previous term "signal-limiting function", now the term "signal cutoff function" is used throughout the instant document. The concept of "additional circuit elements" was also described in the specification and included in the claims of the instant application.

In the initial application the "additional circuit elements" were included by reference to the companion Patent Application US Serial No. 10/676919, filed Oct. 1, 2003. Some information is now copied from the referenced application to provide more details. In addition new Fig. 10a visualizes the concept of the added circuit elements for a signal cutoff function, that was previously only expressed in the text section. To further improve the understanding some paragraphs are now rearranged in sequence.

Additional circuit elements, implementing said signal ~~limiting~~ cutoff functions, drive said switching transistor either into deep saturation (RDSon going to 0) or drive it into its extreme off state (RDSoff going very high) as soon as said switching device falls outside said desired steady ~~transition~~ ramp-up/ramp-down area.

A possible solution for said signal cutoff functions could be to implement said signal cutoff functions as separate circuits in combination with, but external to said translinear amplifier.

The principal concept of said separate circuits for said signal cutoff functions is shown in **Fig. 10a.** Switching devices **N3-10** and **N4-10** symbolize two circuits to drive said switching device to a fully on or fully off state, when said switching device operates outside said steady ramp-up/ramp-down area on the said switching device's low resistance side or high resistance side. The two control signals to either force said fully on or fully off state are **CtlCutOff Lo** and **CtlCutOff Hi**.

Another possible solution could be to implement said ~~Such~~ signal ~~limiting~~ cutoff functions ~~could, according to the invention, be implemented~~ within said translinear amplifier circuit, ~~as it~~ Such solution integrated into the translinear amplifier is ~~shown~~ presented in ~~Fig. 7 of~~ Patent Application US Serial No. 10/676919, filed Oct. 1, 2003, ~~and~~ which is hereby incorporated by reference. The relevant additional signal ~~limiting~~ cutoff function is presented there on page 6, 3rd and 4th paragraph, on page 14, 1st and 2nd paragraph, page 15 2nd full paragraph and in **Fig. 7** with the additional circuits **ADD-COMP 1-7** and **ADD-COMP 2**. Circuit **ADD-COMP 2** in the referenced companion application is a real implementation of circuit element **N4-10** in **Fig. 10a** of the instant application and circuit **ADD-COMP 1-7** in the referenced companion application provides the control signal defined as **CtlCutOff Lo** in the instant application. The referenced application describes the implementation of the signal cutoff functions as cited in the following paragraph:

According to said second aspect, two additional circuit functions sharply limit the analog operating region through an extra current limiting transistor on one side and the purposely use of the voltage limited by the power supply on the other side. Key objective is to linearly control said translinear amplifier's output, for example for switching on or off a transistor in an application like it is shown in **Fig.** 4 (of the referenced application), and getting sharp cutoff edges, for example for switching on or off a transistor in said application to achieve minimum RDSon and maximum of RDSoff at the extreme ends. The desired output characteristic is visualized in **Fig. 5** (of the referenced application).

In **Fig. 5** of the referenced application and described there on page 15, 2nd full paragraph, the linear operating region on line **50b** is marked as the area **59**. Once either output **Vout-p** or **Vout-n** reaches the cutoff voltage **Vlim** at point **59a** or when it reaches the power supply line **Vdd** at point **59b**, the linear operation is sharply cut off.

The above cited linear operating region marked as the area **59**, is the same as the steady ramp-up/ramp-down area of the instant application.

The specific implementation of the signal cutoff function integrated within said translinear amplifier of the referenced application takes advantage of the fact, that the output signal can completely swing up to the power supply rail, driving the Gate-Source Voltage of the switching device to zero, thus forcing a PMOS switch to go into high impedance state without any further measures. In the case the output signal could not swing up to the power supply rail or if a different type of switching device is used, an additional circuit similar in function to the circuits **ADD-COMP 1-7** and **ADD-COMP 2** would be implemented.

~~Said signal-limiting functions could however be implemented as separate circuits external to said translinear amplifier as well.~~

As described as described in the specification, circuit **ADD-COMP 2** in the referenced companion application is a real implementation of circuit element **N4-10** in **Fig. 10a** of the instant application. And circuit **ADD-COMP 1-7** in the referenced companion application provides the control signal defined as **CtlCutOff Lo** in the instant application

6. Regarding claim 23, the recitation "which gives one more degree of freedom to optimize operating parameters, like overlapping of capacitor switching operation and signal cut-off at the edges of the steady transition area." is indefinite because it is not clear what is the "signal cut-off at the edges of the steady transition area." is meant by and how to perform the "overlapping of capacitor switching operation".

Three complete paragraphs starting with the 2nd full paragraph on page 18 are moved forward to a position just after the 4th paragraph on page 14. They introduce the replacement of the operational amlifiers by translinear amplifiers and describe the principal operation of a single translinear stage (Fig. 5) and of the multiple capacitor switching stages (Fig. 6). Now it should be clear, that said description of overlapping is related to the behaviour of multiple capacitor switching stages containing translinear amplifiers. The "overlapping of capacitor switching operation" is nothing to perform "on purpose", it is a heritage of each capacitor switching stages' characteristics and can not be avoided. The measure of overlapping directly depends on the slope of each switching stage's ramp-up and the individually selected distance of the threshold levels, However, if special translinear amplifiers with a gain different from 1, the steepness of the ramp-up slope can be individually adjusted (thus giving one more degree of freedom) and as a result, the overlap of the switching operation between adjacent capacitor switching stages can be independently defined.

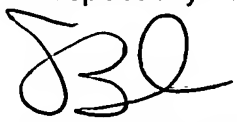
7. Regarding claim Claim 10 which is objected to because the recitation " the circuit to provide the output reference level" lacks antecedent basis: claim 1 is amended, where

the "capacitor switching stages" now comprise "a circuit to provide the output reference levels" .

Reconsideration of the above rejection (or objection) is therefore respectfully requested.

All claims are now believed to be in condition for allowance, and allowance is so requested.
It is requested that should there be any problems with this Amendment, please call the undersigned Attorney at (845) 452-5863.

Respectfully submitted,



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